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09/880,375	06/13/2001	Bulent O. Yavuz	3638G	4986

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EXAMINER

ILDEBRANDO, CHRISTINA A

ART UNIT

PAPER NUMBER

1754

DATE MAILED: 01/02/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/880,375

Applicant(s)

YAVUZ ET AL.

Examiner

Christina Ildebrando

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 13 June 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 39-70 is/are pending in the application.
- 4a) Of the above claim(s) 59-70 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 39-58 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Election/Restrictions

1. Restriction to one of the following inventions is required under 35 U.S.C. 121:
 - I. Claims 39-58, drawn to a catalyst composition, classified in class 502, subclass 64+.
 - II. Claims 59-70, drawn to a method for treating a diesel engine exhaust stream, classified in class 423, subclass 213.5.

The inventions are distinct, each from the other because of the following reasons:

2. Inventions I and II are related as product and process of use. The inventions can be shown to be distinct if either or both of the following can be shown: (1) the process for using the product as claimed can be practiced with another materially different product or (2) the product as claimed can be used in a materially different process of using that product (MPEP § 806.05(h)). In the instant case the product as claimed can be used in a materially different process of use, such as a catalyst for the catalytic cracking of hydrocarbons.
3. Because these inventions are distinct for the reasons given above and have acquired a separate status in the art as shown by their different classification, restriction for examination purposes as indicated is proper.
4. During a telephone conversation with Mr. Victor Libert on December 10, 2001 a provisional election was made with traverse to prosecute the invention of Group I, claims 39-58. Affirmation of this election must be made by applicant in replying to this

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Office action. Claims 59-70 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention.

5. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. Claims 39-58 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claim 38 recites the limitation "Beta zeolite other than iron-doped Beta zeolite." It is the position of the examiner that the specification as originally filed does not provide sufficient support for the negative limitation "other than iron-doped Beta zeolite." Any negative limitation or exclusionary proviso must have basis in the original disclosure. In this case, it is the position of the examiner that the specification does not provide adequate support for the use of any Beta zeolite with the express exclusion of iron-

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doped Beta zeolite. Therefore, it is the position of the examiner that such a recitation introduces new concepts. The express exclusion of certain elements implies the permissible inclusion of all other elements not so expressly excluded. This illustrates that such negative limitations do, in fact, introduce new concepts. Refer to MPEP 2173.05(i) and *Ex parte Grasselli*, 231 USPQ 393 (Bd. App. 1983), *aff'd mem.*, 738 F.2d 453 (Fed. Cir. 1984).

If applicant believes that the specification does provide support for the recitation considered by the examiner to constitute new matter, applicant is requested to point to the page(s) and line number(s) where such support can be found.

Claim Rejections - 35 USC § 103

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 39-54 and 56-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Abe et al. (US 5,296,198) in view of Hertl et al. (US 5,284,638) and Wan et al. (US 4,714,694).

Abe et al. (US 5,296,198) teaches a process for the purification of exhaust gas emanating from an internal combustion engine that contains nitrogen oxides and hydrocarbons. It is taught that the catalytic system comprises a hydrocarbon adsorbent and additional catalytic material to reduce the nitrogen oxides present in the exhaust gas stream (column 2, line 65 – column 3, line 7). It is taught that the adsorbent used is

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a high silica zeolite and that it is exchanged with a noble metal such as Pt or Pd. It is taught that the additional catalytic material is a heat resistant oxide containing at least one noble metal (column 3, lines 36-42). The reference further teaches that the zeolite is used to adsorb hydrocarbons from the cool exhaust gas upon start up of the engine and that as the temperature rises, said hydrocarbons are released from the zeolite and converted by the catalyst material (column 4, lines 24-40). The zeolites mentioned by the reference include ZSM-5 and Y (column 5, lines 17-31). It is also taught that the zeolite to be used should be the hydrogen type in view of the heat resistance such type gives (column 5, lines 45-48).

The second component of the catalyst system is a heat resistant oxide such as alumina and it is taught that additional rare earth oxide such as cerium should be added in order to achieve a higher three way catalytic activity and heat resistance (column 6, lines 39-48).

It is further taught that the amount of zeolite to oxide material is between 10:90 to 85:15 and the total noble metals loaded are present in an amount between 10-35 g/ft³ (column 6, lines 49-57). These values overlap or encompass the amounts of materials instantly claimed. It is taught that the materials are loaded on to a honeycomb monolith structure (column 9, lines 1-23). Lastly, attention is directed to Example 3 which uses a zeolite in conjunction with cerium oxide and alumina oxide having a surface area of 200 m²/g.

The difference between the reference to Abe et al. and the claims are that the reference does not teach the instantly claimed surface area of the bulk ceria present or the use of beta zeolite.

The reference to Hertl et al. (US 5,284,638) also teaches a catalyst system that comprises both a zeolite adsorbent used in conjunction with a heat resistant metal oxide for use in exhaust gas treatment processes. It is taught that the catalyst/adsorbent combination is effective for use in diesel engines (column 3, line 27). It is also taught that the adsorbent used can be zeolite Beta or ZSM-5 or Y zeolite (see column 4, lines 41-44 and the Table at column 7).

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the invention of Abe et al. to include the use of zeolite Beta, in light of the teachings of Hertl et al. One of ordinary skill would have been motivated to use the zeolite beta of Hertl et al. in the composition taught by Abe et al. because zeolite Beta is an art recognized functionally equivalent adsorbent to the zeolites of Abe et al. Because both catalyst compositions can be used in analogous processes, i.e. exhaust gas purification processes, one would have a reasonable expectation of success from the combination.

With respect to the surface area of the ceria, Wan et al. (US 4,714,694) teaches the manufacture of a diesel exhaust gas catalyst. It is taught that a beneficial catalyst carrier can be produced by using alumina having a surface area meeting the instant claims in combination with bulk ceria having the required surface area. See column 10, lines 1-35 and the Examples of '694. It is taught that a platinum group metal is

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supported by the composition. Finally, it is taught that the catalyst composition is effective for the oxidation and reduction of components found in the exhaust gas emanating from the diesel exhaust gas engine.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to have further modified the invention of Abe et al. to include the use of a cerium oxide component having the claimed surface area in light of the teachings of Wan et al. One of ordinary skill in the art at the time the invention was made would have had the motivation to use the specific alumina ceria catalyst composition of Wan et al. in conjunction with the zeolites in the process taught by Abe et al. because of the functional equivalence of the ceria-alumina-noble metal catalyst of both Wan et al. and Abe et al. Because both catalyst compositions can be used in the purification of exhaust gas, one would have a reasonable expectation of success from the combination.

With respect to the encompassing and overlapping ranges previously discussed, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time of invention to select the portion of the prior art's range which is within the range of the applicants' claims because it has been held prima facie case of obviousness to select a value in a known range by optimization for the results. *In re Boesch*, 205 USPQ 215. Additionally, the subject matter as a whole would have been obvious to one of ordinary skill in the art at the time invention was made to have selected the overlapping portion of the range disclosed by the reference because

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overlapping ranges have been held to be a prima facie case of obviousness. *In re Malagari*, 182 USPQ.

10. Claim 55 is rejected under 35 U.S.C. 103(a) as being unpatentable over Abe et al. '198 in view of Hertl et al. and Wan et al. as applied to claims 39-54 and 56-58 above, and further in view of Abe et al. (US 5,164,350).

The references teach the features as previously described which can be found at the aforementioned locations.

The difference between the modified disclosure of Abe et al. '198 and the claims is that the modified disclosure of Abe et al. '198 further does not teach the instantly claimed layer structure.

It would have been obvious to one of ordinary skill in the art at the time the invention was made to use the instantly claimed layer structure in the catalyst of Abe et al. '198 because of the teachings by Abe et al. '350 that such a layer arrangement is conventional in the art of exhaust gas catalysis. Motivation to use the layer structure further comes from the fact that the catalysts of each reference are functionally equivalent and analogous, i.e. both are directed to exhaust gas purification catalysts containing zeolite loaded with noble metal used in conjunction with a heat resistant oxide material also loaded with noble metal.

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Christina Ildebrando whose telephone number is (703)

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305-0469. The examiner can normally be reached on Monday-Friday, 7:30-5, with Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Steve Griffin can be reached on (703) 308-1164. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.



STEVEN P. GRIFFIN

SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1700

CAI
December 30, 2001